NOTE ON PEDICELLARIA.

To the Editors of the Annals of Natural History.

Royal Naval Hospital, Haslar, Aug. 8th.

Gentlemen,—The bodies named Pedicellariæ found upon the bodies and around the mouths of Echinoderms, have been considered by Oken, Forbes, and Sharpey as special organs of the animals on which they are found. The discovery by myself of a new species (*P. volutarum*), parasitic on the skin of *Voluta vespertilio*, will I think confirm the opinion of Cuvier and Müller, that the bodies in question are independent parasitic organisms. The specimen obtained I have preserved in spirits. I am, Gentlemen, yours very truly,

Arthur Adams.

Addendum to Mr. Benson's *Paper on* Cyclostoma, *in the present Number, page* 191.

Dr. Pfeiffer, having examined the original specimen of *Cyclostoma Indicum*, now writes that it has nothing in common with *C. oculus Capri*, and that it is distinct also from *C. Ceylanicum* and *stenomphalum*, to both of which it is allied.

TEREBELLA MEDUSA. BY C. SPENCE BATE.

The manner in which this animal proceeds to construct its case is very interesting to watch. By the long feelers or tentacular cirri which surround its head, anything is grasped with which it may come into contact, such as minute shells, grains of sand, &c. These, upon being drawn near, are placed upon its mouth, the lower edge of which forms a prehensile lip. While resting here, it is, I presume, that the glutinous substance, which, when dried, forms the membranous lining of the tube, is poured over it. With its lip the creature places the sand upon its back, and then rolls itself over from side to side, and again puts forth its tentacula in search of fresh building material.

Their tubes are buried in the sand, to the depth of about a foot or more, with one end above and open to the sea, at which extremity minuter ones branch off, giving it an arborescent appearance.

The tentacular cirri are hollow, crescent-shaped tubes, which are extended and retracted by the injection into its centre of a fluid sent from the body of the animal. [It is a similar power employed by the Nereid Worms to extend the internal mouth of that family.] When it seizes anything, it does so, I presume, by exhausting the water from the convex side of the crescent-shaped tube, and consequently holds by means of the pressure of the surrounding fluid.

Within its case the Annelid has the power of moving freely and turning itself at will. Its progressing movement is performed by means of setæ, or oars, planted in thick muscular sheaths, which enable it to pass freely in one direction, but which, being directed backwards, wholly preclude a retrograde movement. The mechanism by which this latter power is executed, is by means of a long row of minute triple-pointed hooks situated at the base of each set of setæ ;

each hook, which has three points at one extremity, is finished off with a blind hook at the opposite end, the whole of which turns upon a central hinge, so that the elevation of the blind extremity, which is perhaps the ordinary position in which the apparatus rests when not employed, precludes the triple-pointed hook from interfering with the advancement of the animal in its naturally confined abode ; but the instant that the blind or protecting hook is depressed, the sharp triple-pointed end becomes a most powerful agent to assist in its retiring within its own abode, and is, I believe, the only external instrument belonging to the worm possessed of this capability.

These hook-like appendages are common to most of the *Tubicolæ*, but vary in form and shape, not only with genera, but species.

The whole internal cavity of the worm, in which the viscera exist, is filled by a fluid, by means of which the animal moves ; the loss of this entails destruction of motive power, to preclude which, upon receiving any external wound, the animal will cut itself, by contraction of the annular muscles, above the injury inflicted. It also will perform the same act of bisection as a means of escape from the grasp of an enemy ; and this is done not only without the loss of any particle of fluid, but without any appearance of discomfort or pain to the animal.

The intestinal canal is folded upon itself for about one-third of the entire length of the worm, when it joins the outer walls, and is continued into a sort of tail or prolongated rectum. The stomach is but a slight enlargement of the alimentary passage, which again contracts into an œsophagus, the extremity of which is surrounded by a prehensile muscle, which closes and forms the mouth, surrounding the abdominal ridge of which are situated the tentacular cirri.

The respiratory apparatus consists of arborescent branchial filaments, three or four upon either side of the head. These receive the blood from the abdominal artery, (which is, in truth, a respiratory heart, since it injects the blood which it receives from a vascular plexus into the branchial apparatus, from whence it is returned to the dorsal artery,) which carries it beyond the principal viscera of the animal, and then loses itself in small branches upon the walls of the animal, and anastomoses with those which cover the alimentary canal.

Above the gills are situated two ear-like appendages, which seem adapted for the purpose of protecting the excessively delicate branchial organs from the friction of the tube, occasioned by the creature's passing to and fro.

From the head of the animal to about the lower extremity of the stomach is a mass of white granulous material, which I presume to be the ovary, and on either side several ducts lead into pear-shaped sacs. Within these sacs, early in February, I observed active motion of the fluid passing as a current in one direction, excited by a powerful set of cilia. All the sacs do not seem to be in the same state of advancement ; but the progress of the young creature's development, as far as I was able to make out, is as follows :—Some of the particles of the fluid existing within the sacs seem to unite into a nucleus, which in a short time becomes the earliest formation of the new

animal. This little creature is nourished in its earlier stage by the introduction within its own system of the parent fluid in which it exists. This is done through a circular umbilical pulsating heart, which opens by a slit, situated about the centre of the young animal. At this early stage the future intestinal canal is not visible, but certain oval-shaped cells are apparent in irregular positions, sometimes connected in chain-like line.

Shortly, that which I here call umbilical circulation ceases, and the young worm moves within the uterine sac; the intestinal canal becomes now more apparent, the oval cells lying more compact, and the whole surrounded by a wall. Before this is quite perfect, the young creature leaves the sac and passes into a passage or oviduct, one of which on either side of the animal traverses the walls of the worm, and opens into the rectum, beyond the point where the intestinal tube is incorporated with the outer walls of the worm, and is thus voided. Sometimes, though rarely, two young worms exist within the same sac. The greatest number which one might have is perhaps about a dozen. The average number of young found in any specimen at one time is three or four.—*Report of the Swansea Literary and Scientific Society for* 1850.

METEOROLOGICAL OBSERVATIONS FOR JULY 1851*.

Chiswick.—July 1. Hazy and mild: rain: cloudy and fine: thunder and lightning, with very heavy rain. 2. Fine: very fine: clear. 3. Uniformly overcast: cloudy and fine: densely clouded. 4. Overcast: very fine: clear. 5—7. Very fine. 8. Cloudy: rain. 9. Cloudy and fine. 10. Rain. 11, 12. Very fine. 13. Cloudy and fine: overcast: rain. 14. Cloudy: windy. 15. Fine: windy: slight rain. 16, 17. Very fine. 18. Cloudy. 19. Fine: rain: constant heavy rain in the evening. 20. Cloudy and fine. 21. Very fine. 22. Dry haze: very fine. 23. Rain. 24. Heavy rain. 25, 26. Very fine. 27. Cloudy and fine. 28. Cloudy: rain. 29. Very fine. 30. Foggy: very fine. 31. Hazy: overcast.

Mean temperature of the month	60°·71
Mean temperature of July 1850	61 ·91
Mean temperature of July for the last twenty-five years	63 ·13
Average amount of rain in July	2·30 inches.

Boston.—July 1, 2. Fine. 3. Cloudy. 4, 5. Fine. 6, 7. Cloudy. 8. Cloudy: rain A.M. and P.M. 9. Rain: rain A.M. 10—12. Cloudy. 13. Fine: rain P.M. 14. Cloudy: rain A.M. and P.M. 15, 16. Cloudy. 17. Cloudy: rain with thunder A.M. 18. Fine. 19. Fine: rain P.M. 20. Cloudy: rain A.M. 21. Fine: rain P.M. 22. Fine. 23. Cloudy: rain A.M. and P.M. 24. Rain: rain A.M. and P.M. 25. Cloudy: rain A.M. and P.M. 26. Cloudy: rain P.M. 27. Fine. 28. Rain: rain early A.M. 29. Cloudy: rain P.M. 30. Cloudy. 31. Cloudy: rain P.M.

Sandwick Manse, Orkney.—July 1. Fog. 2. Cloudy: clear. 3. Clear. 4. Cloudy: drizzle. 5. Damp: clear. 6. Damp: drizzle. 7. Drizzle: rain. 8. Bright: clear. 9. Bright: clear: fine. 10. Drops. 11. Showers: fog. 12. Rain. 13. Cloudy: rain. 14. Damp. 15. Drizzle: rain. 16. Cloudy. 17. Damp: drizzle. 18. Bright: fine. 19. Fine. 20. Bright: rain. 21. Drizzle: rain: cloudy. 22. Bright: clear: fine. 23. Fine: clear: fine. 24. Cloudy: fine. 25. Cloudy: drizzle. 26. Cloudy: rain. 27. Drizzle: fine. 28. Rain: cloudy. 29, 30. Cloudy. 31. Rain: drizzle.

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* The observations from the Rev. W. Dunbar of Applegarth Manse have not reached us.